

FACT SHEET

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) Permit No. WA-003837-7. The Department of Ecology (the Department) is proposing to issue this permit which will allow discharge of treated municipal wastewater to waters of the State of Washington.

This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. Public involvement information is contained in Appendix A. Definitions are included in Appendix B.

GENERAL INFORMATION

<u>Applicant:</u>	Mason County Department of Community Development
<u>Facility Name and Address:</u>	Hartstene Pointe Wastewater Treatment Facility Chesapeake Drive, Lot 48 Hartstene Pointe, WA
<u>Type of Treatment:</u>	Activated Sludge, Sequencing Batch Reactor, Aerobic Sludge Digestion, Chlorination Disinfection
<u>Discharge Location:</u>	North End Hartstene Island, Marine Waters, southeast direction 625 feet offshore, 40 feet below MLLW, Case Inlet Latitude: 122° 50' 42" N. Longitude: 47° 17' 47" W.
<u>Water Body ID Number:</u>	WA PS 0090

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BACKGROUND INFORMATION

DESCRIPTION OF THE RECEIVING WATER

Case Inlet is designated as a Class AA (Extraordinary) receiving water in the vicinity of the outfall. Characteristic uses include the following:

fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

There are both commercial and recreational shellfish resources in the vicinity of the Hartstene Pointe outfall. Figure 1 (Appendix D), prepared by the Shellfish Section of the Washington State Department of Health, provides the classification status of commercial shellfish growing areas and indicates the location of commercial and recreational shellfish areas and municipal wastewater treatment plants. The nearest commercial shellfish area from Hartstene Pointe is located across Pickering Passage at McLane Cove, approximately one mile from the outfall. There are also recreational shellfish areas located at Jarrell Cove, numbers 71 and 72, approximately two miles south of the outfall on Pickering Passage.

In addition to the shellfish classification map, the Washington State Department of Fish and Wildlife has provided information on geoduck resources in the vicinity of the Hartstene Pointe outfall (see Table 1, Appendix D). Bed Nos. 223-227 are located in the immediate vicinity of the treatment plant discharge. Bed No. 224 is listed as polluted due to their proximity to the Hartstene Pointe development sewage effluent and are therefore noncommercial.

DESCRIPTION OF THE FACILITY

History

Hartstene Pointe is a recreational and residential community developed by Quadrant Corporation and located in Mason County, Washington, about 15 miles northwest of Shelton on the north end of Hartstene Island (Figure 2). Hartstene Pointe is 232 acres in size and consists of 534 lots and recreational facilities. The community is served by its own water system and wastewater collection and treatment facilities. The treatment plant was originally constructed to provide only primary treatment. There are no commercial or industrial developments at Hartstene Point.

State regulations (WAC 173-240-104) required that the wastewater treatment plant (WWTP) be owned and operated by a public entity. In June 1970, Mason County and Quadrant Corporation signed an agreement for the eventual dedication of the collection and treatment system to the county. This transfer has been completed.

In this agreement, Quadrant Corporation agreed to complete the Stage II primary treatment facility and provide the local share of funds for the planning and construction of secondary treatment. In 1980, the Stage II primary facilities were completed and the county has accepted them in accordance with the 1970 agreement.

In August 1985, the Department issued a National Pollutant Discharge Elimination System (NPDES) permit for the WWTP with both interim and final limits. The county was directed by this permit and a subsequent Consent Order to meet secondary standards by December 31, 1993. The construction plans and specifications (P&S) were approved in July 1992. However, the county was not able to acquire a hydraulic project approval (HPA) permit from the Department of Fish and Wildlife for the modification to the outfall

because of the discharge effect on the geoduck beds near the outfall site. To move forward with the project, it was decided that the outfall portion of the project would be taken out of the contract and addressed separately. The modified P&S were approved in January 1993 and the county received the required funding and approval for construction in February 1993. The construction was completed and the WWTP began operation in July 1994. See Figure 1 for Vicinity and Location Maps.

FIGURE 1 --- VICINITY AND LOCATION MAPS

Treatment Processes

The secondary wastewater treatment plant construction was completed in July 1994. The treatment process consists of:

- *New headworks with parshall flume influent meter;
- *Two sequencing batch reactors (SBR);
- *Chlorine contact tanks (existing 6000 gallons and new 20,940 gallons);
- *New effluent pumps (required for discharge during high tides);
- *Existing 6 inch outfall with 2-2 inch diffusers (discharges into Case Inlet, 625 feet offshore at LLW);
- *Conversion of the existing primary clarifier into an aerobic digester; and
- *Existing auxiliary diesel power unit rated at 37.5 KVA (modified to three phase).

The SBR will consist of two identical aeration basins equipped with air diffusion equipment, decanter, and inlet and outlet flow control valves. A computer control system will automatically regulate timed SBR operating cycles of fill, react, settle, and decant for changes in flow conditions. One aeration basin will fill while the other basin will simultaneously proceed through the react, settle and decant stages. The existing sludge pumps will be used to automatically and periodically waste solids from the aeration basins. The chlorination system will be upgraded to regulate chlorine injection by means of a feedback signal from the flow meter. Aeration will also be added to the new chlorine contact tank because of intermittent discharges. In the event of an alarm condition, the plant's control system will initiate a dialer function to contact the appropriate personnel. See Figure 2 for Process Schematic.

The existing collection system consists of 60,200 feet of gravity and force mains, 113 manholes, and 3 lift stations. The collection system was constructed between 1970 and 1973 and serves the entire 232-acre development. The service area includes ultimately 533 dwelling units consisting of 443 single-family and 90 multi-family units. As of December 1990, there were only 74 full-time and 208 seasonal connections to the sewer system. The entire collection system of sewer mains exist for full build out of the service area. The entire wastewater collection system for ultimate population exist today; therefore, the amount of infiltration and inflow (I/I) into the WWTP is of concern. Treatment efficiencies may be effected by I/I. The infiltration in the system will be higher than for normal systems constructed as the growth occurs. Even though only 53 percent of the dwelling units exists today, the infiltration may be 75 to 100 percent of the infiltration for full build out.

The WWTP is classified as a Class II plant in accordance with WAC 173-230. An operator certified for a Class II plant by the State of Washington shall be in responsible charge of the day-to-day operation of the wastewater treatment plant. A Class I operator shall be present at the facility during all shifts when operational changes are made to the treatment process.

FIGURE 2 --- PROCESS SCHEMATIC

Residual Solids

The existing primary clarifier was modified to an aerobic digester. Waste activated sludge is pumped from the SBR basins to the aerobic digesters. The quantity of sludge produced was estimated to be 85 lbs/day at start up and increased to 162 lbs/day at design population. The desired solids retention time is maintained at 12 days. Sludge from the digester goes to a holding tank where a sludge truck with a truck mounted pump will pump sludge from the tank. The stabilized sludge is hauled off site to a sludge processor and further stabilized with lime, and disposed by land application (Christmas tree farms). The sludge is hauled from the WWTP by Joe's Septic Service of Shelton to the Biorecycling, Inc. facility for further processing. The county is currently studying final disposal alternatives that will include both septage and wastewater sludge from Hartstene Pointe. As part of this permit, the county is required to complete the sludge management plan and have it approved by the Department within 24 months of the issuance date of this permit.

Discharge

The SBR facility discharges on a decant cycle, approximately seven times per day. The design decant rate and time are 450 gallons per minute (gpm) and one hour, respectively. Since the decant rate and time are constant, only number of decant cycles per day shall be reported. However, the Permittee is required to report any changes made to this decant rate and/or time during the reporting month.

Secondary treated and disinfected effluent is discharged intermittently through two 2 inch diffusers at the end of a 6 inch outfall pipe. The pipe extends 625 feet from shore into Case Inlet at a depth of 40 feet MLLW.

PREVIOUS PERMIT LIMITATIONS

The plant was originally constructed in 1970 and upgraded in 1980 to provide primary treatment of domestic wastewater. The permit for the primary facility was issued on August 21, 1985. The permit included interim and final effluent limitations, and required the completion of construction of secondary treatment by July 1, 1988. The final schedule for secondary treatment was agreed upon in the Order Of Dismissal (PCHB NO. 87-61). The Order required completion of the WWTP construction and compliance with secondary treatment limits by December 31, 1993. The issues with the location of the outfall and possibility of contamination in nearby shellfish (geoduck) beds caused delays in the project completion. The completion of construction for secondary treatment was accomplished in July 1994.

The effluent limits (Interim) for the primary treatment facility were as follows:

<u>Parameter</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Suspended solids	(See below)*	
Fecal coliform bacteria	200/100 ml	400/100 ml
pH	Shall not be outside the range 6.0 to 9.0	

*The monthly average effluent limitations for suspended solids shall be 15 mg/l or 50 percent of the influent concentration, whichever is less stringent. In no case, however, shall the effluent suspended solids concentration exceed 70 mg/l.

The effluent limits (Final) for the secondary treatment facility for flow (mgd), 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform are:

<u>Parameter</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Flow	0.15 mgd	
BOD ₅	30 mg/l, 52 lbs/day	45 mg/l, 78 lbs/day
Suspended Solids	30 mg/l, 52 lbs/day	45 mg/l, 78 lbs/day
Fecal coliform bacteria	200/100 ml	400/100 ml
pH	Shall not be outside the range 6.0 to 9.0	

The Order of Dismissal (PCHB NO. 87-61) allowed for extension of the Interim (primary) limits to completion of construction in July 1994 and compliance with the above Final (secondary) limits until this permit is issued.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The secondary facility received a Class 1 inspection in April 1994 prior to completion of construction. A Class 2 inspection is schedule for April 1995.

During the history of the permit for the primary treatment facility, the Permittee has remained in compliance with effluent limitations based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. Since the facility has been upgraded to a secondary treatment facility, effluent limitations and design criteria over a 24 month period will be analyzed to determine compliance with the permit and water quality regulations.

WASTEWATER CHARACTERIZATION

An application for permit renewal was submitted to the Department on December 13, 1993, and accepted by the Department on February 20, 1994.

The predicted annual average daily discharge as described in the NPDES application is characterized for the following regulated parameters:

<u>Parameter</u>	<u>Annual Average Daily Discharge</u>
Flow	0.06 MGD
BOD ₅	10 mg/l
TSS	20 mg/l
Chlorine-Total Residual	0.4 mg/l
pH	6.9 to 7.4

Since Hartstene Pointe is only a residential community, there is no industrial or commercial dischargers into the collection system. The Permittee will, however, be required to monitor the effluent for the following list of pollutants of concern: total chlorine residual and total ammonia (NH₃).

DEPARTMENT OF FISH AND WILDLIFE COMPLIANCE

The previous permit required the Permittee to evaluate outfall modifications necessary to achieve certification from the Department of Health for currently decertified geoduck beds in the vicinity of the outfall. However, the proposed outfall extension did not include additional studies to recertify the beds. Therefore, the Department of Fish and Wildlife (F&W), with input from the Department of Natural Resources, held up the hydraulic permit for modification to the existing outfall. The F&W has required the Permittee to complete additional studies on upland alternatives until all reasonable alternatives to an ocean

discharge have been analyzed. This outfall alternative analysis process is scheduled to be completed by January 1, 1998.

PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Water Quality Standards (Chapter 173-201A). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

DESIGN CRITERIA

In accordance with WAC 173-220-150(1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for the primary treatment facility were as follows:

Monthly average (wet weather) flow:	0.146 MGD
BOD influent loading:	290 lb/day
TSS influent loading:	340 lb/day
Design population equivalent:	1720
Design efficiency - BOD removal:	44 percent
Design efficiency - TSS removal:	67 percent

The design criteria for the secondary treatment facility are as follows:

Monthly average flow (max. month):	0.186 mgd
Monthly average dry weather flow:	0.097 mgd
Instantaneous peak flow:	0.565 mgd
BOD influent loading:	270 lbs/day
TSS influent loading:	270 lbs/day
Design population equivalent:	1350

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of treatment for municipal wastewater.

The following technology-based limits are taken from Chapter 173-221 WAC:

pH: shall be within the range of 6.0 to 9.0 standard units.

Fecal Coliform Bacteria: Monthly Geometric Mean = 200 colonies/100 ml
Weekly Geometric Mean = 400 colonies/100 ml

BOD₅: Average Monthly Limit is the most stringent of the following:
- 30 mg/L
- may not exceed 15 percent of the average influent concentration.

TSS:

Average Monthly Limit is the most stringent of the following:

- 30 mg/L
- may not exceed 15 percent of the influent concentration.

The following technology-based limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b). Effluent mass loadings (lbs/day) were calculated as follows:

Average design flow (0.186 mgd) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit (46.5 lbs/day).

Weekly average effluent mass loading = 1.5 X monthly loading = 70.0 lbs/day.

WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Water Quality Standards. The Washington State Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the waters of the state. Several major elements of the State's Water Quality Standards are discussed in Figure 1.

The Department has reviewed existing records to determine if ambient water quality is either higher or lower than the designated classification criteria (Class AA) given in Chapter 173-201A WAC. The available records show that the existing ambient conditions for dissolved oxygen and temperature may at times exceed Class AA criteria (DO < 7.0 mg/l; Temp. > 13.0° C). However, it is not known if these exceedances of Class AA criteria are caused by natural or human means. The effluent discharged from the facility is not expected to cause a degradation of existing water quality. Therefore, the Department will use the designated classification criteria for this water body in the proposed permit.

Numerical Criteria

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards (Chapter 173-201A WAC), which specify the allowable levels of pollutants in a receiving water. Numerical criteria for dissolved oxygen and turbidity are among the criteria contained in WAC 173-201A-030. Numerical criteria are also listed for many toxic substances including chlorine and ammonia (WAC 173-201A-040).

Numeric criteria set forth in the Water Quality Standards are used to derive the effluent limits in a discharge permit. When water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) are used to limit acute and chronic toxicity, radioactivity, and other deleterious materials, and prohibit the impairment of the aesthetic value of the waters of the state. Narrative criteria describe the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

Antidegradation Policy

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

Mixing Zones

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment at the point of discharge. The concentration of pollutants at the edge of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention and control (AKART).

Figure 1.

Major elements of the State of Washington Water Quality Standards

Mixing Zone Authorization

Because of the reasonable potential for pollutants in the proposed discharge to exceed water quality criteria, mixing zones may be authorized. These zones will accommodate the geometric configuration and flow restriction for mixing zones in Chapter 173-201A WAC and are defined as follows:

Chronic mixing zone: Extend in any horizontal direction from the discharge ports for a distance of 240 feet.

Acute mixing zone: Extend in any horizontal direction from the discharge ports for a distance of 24 feet.

The dilution factors of effluent to receiving water that occur within these zones for the existing outfall configuration have been determined by the use of the PLUMES UM dilution model. A mixing zone dilution ratio analyses shall be completed for any new outfall alternative selected prior to final approval. Refer to Department of Fish and Wildlife compliance issues.

Water Quality-Based Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water. Water quality-based limits are derived for the waterbody's *critical condition*, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota and existing or characteristic water body uses.

BOD--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

The impact of temperature, pH, fecal coliform, chlorine, ammonia, and metals were modeled as shown below using dilution factors described above.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at receiving water and waste discharge conditions that represent the highest potential for adverse impact on aquatic biota and existing or characteristic water body uses. These conditions define the "critical condition" of the water body. The receiving water temperature at the critical condition is 17.3°C and the effluent temperature is 20°C. The predicted resultant temperature at the boundary of the chronic mixing zone is 17.54°C (< 17.87°C Limit).

Under these conditions there is no predicted violation of the Water Quality Standards; therefore, no effluent limitation for temperature was placed in the permit.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the Water Quality Standards.

Under these conditions there is no predicted violation of the Water Quality Standards. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not limited.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 colonies per 100 ml and a dilution factor of 192.7:1. The technology-based limit was found to meet the Water Quality Standards.

Under these conditions there is no predicted violation of the Water Quality Standards; therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the permit.

Toxic pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards or from having water quality-based effluent limits.

With the existing outfall location and configuration, the Department has determined that the applicant has the toxic pollutants ammonia and chlorine in their effluent. A determination of the reasonable potential of these pollutants to cause a violation of the Water Quality Standards is therefore required.

The determination of the potential of a chemical to violate the Water Quality Standards is contingent, in part, upon the amount of mixing that occurs in an assigned mixing zone. In the existing case, the Department has determined that a mixing zone is required because the effluent exceeds the water quality criteria with technology-based controls. The Department proposes to allow a mixing zone as specified in this fact sheet and finds that the mixing zone will not cause a loss of beneficial uses of the receiving water.

The determination of potential of ammonia (total as NH_3) and chlorine (total residual) to exceed the water quality criteria was conducted using receiving water and waste discharge conditions with the existing outfall that represent the highest potential for toxicity in the receiving water environment. This condition is called the critical condition. The critical condition in this case occurs during the summer months. The parameters used in the critical condition modeling are as follows: acute dilution factor 28.3, chronic dilution factor 192.7, pH 8.4, salinity 29.2 g/Kg, and receiving water temperature 17.3°C.

The reasonable potential for exceeding water quality criteria was evaluated with procedures given in EPA, 1991 as shown in Appendix C. The calculations show that water quality limits are required for total chlorine residual but not for ammonia (NH_3)

Effluent limits were derived for chlorine (total residual) which were determined to have a reasonable potential for violation of the Water Quality Standards.

Effluent limits were calculated using methods from EPA, 1991 as shown in Appendix C.

The following effluent limits for total chlorine residual were determined for the existing outfall configuration:

Daily maximum:	0.36 mg/l
Monthly Average:	0.14 mg/l

The critical flow condition at the new WWTP is the decant rate over a one-hour period. Since acute toxic limits are established for a one-hour period, toxic limits are required for total chlorine residual. The original design included a modification to the existing outfall to increase dilution ratios. However, the Departments of Fish and Wildlife and Natural Resources have required additional studies to relocate the outfall. This study would include an outfall design to meet the dilution ratios needed to eliminate acute toxic limits for chlorine residual and ammonia. Because of the ongoing study and because acute condition would only affect aquatic life if they happened to enter the acute zone at the beginning of the decant cycle and stayed

there for the one-hour period, the installation of dechlorination is conditional upon completion of the study and the design and relocation of the outfall.

Whole Effluent Toxicity

The Water Quality Standards also require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent and, therefore, this approach is called whole effluent toxicity (WET) testing. Whole effluent toxicity testing measures both acute toxicity and chronic toxicity.

Acute toxicity tests measure death as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles.

The effluent has already been evaluated for those toxics (ammonia and chlorine) which might be expected in domestic effluent. There are no industrial or commercial dischargers. Unidentified sources of toxicity are not expected to be present in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC.

Human Health

The conditions in this permit seek to protect aquatic life from toxic effects. Since the permit limits for the protection of aquatic life are more stringent than the limits for human health, it is assumed that protecting aquatic life will also protect the health of humans. If Ecology finds that this permit does not protect human health, the permit will be modified to incorporate new conditions as needed.

Sediment Quality

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine whether or not a discharger will be considered a sludge generator and to determine the appropriate uses of the sludge. Sludge monitoring is required in accordance with 40 CFR 122.44(i)(2).

The monitoring and testing schedule is detailed in the permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is

consistent with agency guidance given in the current version of the Department Permit Writer's Manual for an activated sludge treatment process. This frequency of monitoring is considered to be the minimum frequency to document compliance.

OTHER PERMIT CONDITIONS

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant may result in a violation of the terms and conditions of the permit. To prevent this from occurring, Chapter 90.48.110 RCW and WAC 173-220-150 require the Permittee to take the actions detailed in permit requirement S.4. to plan expansions or modifications before existing capacity is reached, and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O & M)

The proposed permit contains Condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

CONSTRUCTION OR MAINTENANCE-RELATED OVERFLOW OR BYPASS

Permit Condition S.6. requires the Permittee to prevent any discharge from the treatment facility from violating water quality standards during construction or any maintenance related process. This condition is required by Chapter 90.48.080 RCW (WAC 173-220-130 and WAC 173-221-040); State Environmental Policy Act (Chapter 43.21C RCW) and adopted rules (WAC 197-11); federal regulation 40 CFR 122.4(m).

RESIDUAL SOLIDS HANDLING

To prevent water quality problems occurring from the improper storage, handling, or disposal of solid wastes, the Permittee is required in permit Condition S.7. to handle and dispose of all residual solids in accordance with the requirements of RCW 90.48.080 and the jurisdictional health department; the Department-required management plan (WAC 173-240-060(3)(m)); State Water Quality Standards; and applicable federal laws.

OUTFALL EVALUATION

Permit Condition S.8. requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

DECHLORINATION INSTALLATION

A schedule for installation of equipment to meet the final effluent limit for total chlorine residual is included in the permit. The Water Quality Standards (WQS) regulation WAC 173-201A allows use of compliance schedules to meet WQS. Interim limits for total residual chlorine is a prohibition on use of chlorine concentration above that necessary to achieve compliance with the fecal coliform limit.

SEWAGE SLUDGE AND BIOSOLIDS USE OR DISPOSAL PRACTICES

There are federal, state, and local jurisdictional health department requirements for use or disposal of sewage sludge and biosolids. The federal regulations published at 40 CFR part 503 establish technical standards for land application, surface disposal, and incineration. Final use or disposal of biosolids or sewage sludge requires a permit. The Permittee should consult with the Department and the jurisdictional health department regarding biosolids and sewage sludge permit requirements. The Permittee, however, shall comply with the monitoring requirements in this permit. The Permittee's liability for the ultimate disposal of the WWTP's sludge does not end with the transfer of the sludge to a sludge processor for disposal. Therefore, the Permittee should visit the sludge processing facility and disposal site to review procedures.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations, and have been standardized for all NPDES permits issued by the Department.

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

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1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

REVIEW BY THE PERMITTEE

A proposed permit was reviewed by the Permittee for verification of facts. Only factual items were corrected in the draft permit.

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one. The permit contains conditions and effluent limitations which are described in the preceding pages of this fact sheet.

| Public notice of application was published on *(date)* and *(date)* in *(name of publication)* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

| The Department will publish a Public Notice of Draft (PNOD) on *(date)*, in *(name of publication)* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
510 Desmond Drive SE
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within 30 days from the date of public notice of draft permit, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

| Further information may be obtained from the Department by telephone, _____, or by writing to the address listed above.

APPENDIX B--DEFINITIONS

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Class 1 Inspection--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.

Class 2 Inspection--A walk-through inspection of a facility that includes the elements of a Class 1 Inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS (Existing Outfall Configuration)

DETERMINATION OF REASONABLE POTENTIAL

The following variables were used for each pollutant to determine the reasonable potential for violations:

Variable A.*COEFFICIENT OF VARIATION*--This is a measure of variability of a pollutant in the effluent and is calculated as the standard deviation divided by the mean. When less than ten data points are available a value of 0.6 is used (EPA 1991). This value is representative of the variability of the conventional pollutants from municipal treatment plants and therefore is used to estimate the variability of other pollutants.

Variable B.*NUMBER OF DATA POINTS* on the concentration of the pollutant in the effluent from which the determination is being made.

Variable C.*HIGHEST VALUE OF THE DATA POINTS* used to determine Variable B.

Variable D.*MAXIMUM EXPECTED CONCENTRATION OF THE POLLUTANT IN THE EFFLUENT*.

Variable E.*MIXING ZONE DILUTION FACTOR* (for either the chronic or acute zone, depending on the calculation).

Variable F.*CONCENTRATION OF THE POLLUTANT AT THE EDGE OF THE MIXING ZONE*.

Variable G.*THE WATER QUALITY CRITERION VALUE FOR THE POLLUTANT*.

Variables A, B, and C are used with Table 3-2 of EPA 1991 to estimate the maximum expected concentration of the toxic pollutant (95th percentile) in the effluent at a 99 percent confidence level (Variable D). These are shown in the following table.

POLLUTANT	A	B	C	D
Chlorine	0.6	60	4.00	5.8
Ammonia ¹	0.6	24	5.0	9.4

¹ Total Ammonia (mg/L NH₃)

The maximum expected concentration (Variable D) is added to the background level of the pollutant in the receiving water. This sum is then divided by the dilution factor (Variable E) at the critical condition to determine the concentration of the pollutant at the edge of the mixing zone (Variable F), as shown in the following formula:

$$(D + (\text{background concentration} \times (E - 1))) \div E = F$$

If the resultant concentration at the edge of the mixing zone (Variable F) exceeds the water quality criterion (Variable G), an effluent limit is imposed. These factors are shown in the following table.

POLLUTANT	D	E	F	G
Chlorine ^a	5.8	28.3	0.205	0.013
Chlorine ^c	5.8	192.7	0.030	0.0075
Ammonia ^a	9.4	28.3	0.33	3.85
Ammonia ^c	9.4	192.7	0.05	0.48

^a denotes calculations using the acute criterion and the acute zone dilution factor

^c denotes calculations using the chronic criterion and the chronic zone dilution factor

CALCULATION OF WATER QUALITY-BASED EFFLUENT LIMITS

Water Quality-based effluent limits were calculated using the following method from EPA, 1991.

Maximum Daily Limit = MDL

$$MDL = LTAx e^{(Z\theta - 0.5\theta^2)}$$

where:

$$\sigma^2 = \ln[CV^2 + 1]$$

z = 2.326 (99th percentile occurrence probability)

LTA = Long term average

Average Monthly Limit = AML

$$AML = LTAx e^{(Z\theta_n - 0.5\theta_n^2)}$$

where:

$$\sigma^2 = \ln[(CV^2 \div n) + 1]$$

n = number of samples/month

z = 1.645 (95th percentile occurrence probability)

LTA = LTA_a or LTA_c, whichever is smaller

$$LTA_a = WLA_a \times e^{[0.5\sigma^2 - z\sigma]}$$

where:

$$\sigma^2 = \ln[CV^2 + 1]$$

z = 2.326

WLA_a = ACUTE WASTELOAD ALLOCATION = (acute criteria) x (acute zone dilution factor)

$$LTA_c = WLA_c \times e^{[0.5\sigma^2 - z\sigma]}$$

where:

$$\sigma^2 = \ln[(CV^2 \div 4) + 1]$$

z = 1.645

WLA_c = CHRONIC WASTELOAD ALLOCATION = (chronic criteria) x (chronic zone dilution factor)

**RESPONSES TO COMMENTS
HARTSTENE POINTE NPDES PERMIT NO. WA-003837-7**

The following review comments were received during the 30-day public review period (January 5 to February 5, 1995).

DEPARTMENT OF HEALTH

Frank Meriwether
Letter Dated: January 25, 1995

Comment:

Permit Section S4.J (S3.J): "Reporting. The area codes..."

Response:

Change noted.

Comment:

Permit Section S9: "The last sentence doesn't appear to be complete."

Response:

Sentence clarified as follows: "Therefore, the Permittee shall design, install and operate dechlorination at the facility unless a new outfall is designed and installed to meet the required dilution ratios, dechlorination shall be installed by (within 36 months of the issuance date of this permit)."

Comment:

Fact Sheet, page 3. "WDFW has recently renumbered the geoduck tracts at the north end of Hartstene Island. The numbers have changed from 196-199 to 224-227 (see attached map). Please also refer to the attached listing of their status."

Response:

Changes are noted and the map and table are included with this Response To Comments (RTC) to replace previous Figure 1 and Table 1 in Fact Sheet in Appendix D.

Comment:

Fact Sheet, page 8. "It is unclear as to why the final effluent limits for monthly average flow at the secondary treatment facility is listed as 0.15 MGD."

Response:

No changes required. "The 0.15 MGD is the Final limit for flow in the previous permit to upgrade the primary treatment facility to secondary treatment, as identified in the heading for that section - PREVIOUS PERMIT LIMITATIONS."

Comment:

Fact Sheet, Appendix C. "Variable C for chlorine residual is listed as 4.00 mg/l. ..."

Response:

The value for chlorine residual should have been entered as 0.4 mg/l instead of 4.0 mg/l (see page 8 of the Fact Sheet - Wastewater Characterization). The pages were corrected to reflect the actual number as reported in the design report and by the consulting engineer. See attached.

Comment:

Fact Sheet, Appendix C. "The symbol theta should be replaced by the symbol sigma in the equations listed for MDL and AML."

Response:

Changes noted, see attached.

Comment:

Fact Sheet, UM farfield calculation on Case 6 of 7. "The less stringent farfield dilution of 192.7 (4/3 Power Law) was selected over the Constant Eddy Diffusivity prediction of 168.6. It would be helpful for the Fact Sheet to explain why the less stringent dilution was selected."

Response:

No changes required. Thank you for calling this concern to our attention. The use of the different farfield dispersion factor are related to whether the outfall discharges into strictly an open ocean condition (non-boundary conditions) or where boundary conditions may effect the dilution factors. In this case, it would have been correct to use the Constant Eddy factors because the outfall discharges into an estuary. The dilution ratio (168.6) was modeled and because acute conditions governed in this case, no changes to permit limits were required. Changes made to calculations, see attached.

MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT

Gary Yando, Director
Letter Dated: January 26, 1995

Comment:

Paragraph 1 -- "... location and performance of the existing outfall. ... it was originally planned to replace the diffuser ... Department of Fisheries refused HPA permit for this modification. ... revised NPDES permit does not mention this plan but does state that dechlorination shall be installed within 36 months unless a new outfall is designed and installed."

Response:

No changes required. The NPDES permit for the wastewater discharge is a legal document for conditions that exist at the time the permit is issued. Since the proposed outfall modification was not installed, the water quality limitation evaluation of the existing outfall for total chlorine residual required dechlorination. Normally, the schedule for installation of dechlorination should be limited to one year. However, it is recognized that an alternative discharge evaluation is currently taking place. In consultation with the Permittee's consultant, this outfall evaluation, design, and installation should take 36 months. The NPDES permit is not the vehicle to explain this procedure. Please refer to the Fact Sheet, Department of Fish and Wildlife Compliance, for an explanation of this issue.

Comment:

Paragraph 2, 3, and 4 -- "...outfall issue needs more consideration ... replacing of the diffuser to improve dilution characteristics is the needed solution. Agreeing to the installation of a dechlorination facility within 36 months is of great concern ... prepare an amendment to the existing approved engineering report and outfall analysis which in essence will address the following: ... If Mason County were to install a dechlorination facility would the concerns for the outfall go away? ..."

Response:

No changes required. The permit reflects only existing discharge conditions at the time the permit is issued. Therefore, dechlorination is required to reduce total chlorine residual. Since Ecology has approved the engineering report, the proposed outfall modification will meet water quality standards (including total chlorine residual).

The amendment to the engineering report is required by the WDFW in response to the HPA and the DOH shellfish closure requirements near domestic wastewater outfalls. Dechlorination is an issue with meeting the requirements in the water quality standards, as reflected in the NPDES permit. In this later case, the Permittee could replace the diffuser, move the outfall to a new location to achieve the required dilution, or construct an alternative discharge such as water reuse to meet the water quality limitations.

Comment:

Paragraph 5 ... "concerned with permit condition item D(2) page 12 of 20. Infiltration and Inflow Evaluation. ... "

Response:

No changes required. Permit Special Condition S4.D.2 is standard language in permits. I have enclosed standard forms with the permit to the Permittee to be filled out annually. The data in the forms is based on treatment plant records. The information provided in the forms is required to record annual changes to flows and/or loadings at the treatment facility compared to the base year (i.e., approved engineering report).

SQUAXIN ISLAND TRIBE

Jeff Dickison, Biologist
Letter Dated: January 31, 1995

Comment:

Paragraph 2 ... "Infiltration and Inflow ... The permit assigns the principle responsibilities for monitoring this issue to the permittee. We believe this is inappropriate. This is particularly so when you ask the permittee to provide an "indication of compliance or non-compliance with permit effluent conditions." Ecology, not the permittee, should be the interpreter of compliance with permit conditions. A more aggressive approach is needed on this subject to assure the plant does not exceed its hydraulic capacity resulting in overflows into the discharge environment."

Response:

No changes required. Permit Special Condition S4.D "Infiltration and Inflow Evaluation and Annual Assessment" -- The permittee is required to submit information to Ecology on the Wastewater Treatment Plant (WWTP) flows and rainfall on an annual basis for a comparison of the current years I/I with a base I/I flow (as identified in the approved Facility Plan). This information is required to alert the permittee to changes in the I/I flows and to trigger any improvements and/or modifications to the collection system or the treatment plant that may be required. This information is submitted to Ecology on a form provided by Ecology.

The actual interpretation for compliance is determined by Ecology. The WWTP flows (including I/I) are tracked on a monthly basis throughout the year on the Discharge Monitoring Reports (DMRs). The DMRs will show when and if problems occur at the WWTP. If I/I is causing problems with compliance with the permit conditions, Ecology would require the permittee to correct the problem. The permittee is also required under General Condition G4 to notify Ecology of any bypasses or overflows when they occur (within 24 hours) and to correct the problem so it will not recur in the future.

Comment:

Paragraph 3 -- "Chlorination limitations have been set to take effect 36 months after the onset of the permit. Dechlorination is waived pending the outcome of alternative discharge feasibility studies. ... To continue to delay final decisions on this subject for another 36 months is unacceptable."

Response:

No changes required. WAC 173-201A-160 (4) authorizes the Department to set reasonable schedules in the permit to achieve compliance with water quality standards (WQS) in the shortest practicable time. The facility and the outfall modification were designed to meet the requirements of the WQS. The schedule required in the permit is due to the additional requirements imposed by the Department of Fish and Wildlife (WDFW). The WDFW did not issue the HPA for construction of the outfall modifications until further alternatives were investigated. Because of this new requirement, it will take time to determine the most reasonable cost effective alternative, design the alternative, and construct the alternative.

Comment:

Paragraph 4 -- "The Tribe maintains interest in the finfish resources which swim in the vicinity of the current discharge as well as intertidal and subtidal shellfish resources which inhabit the substrate of the area. ... resources are rendered unsafe by a sewage treatment plant ... The Department of Ecology, by continuing to condone this practice, is adversely impacting the treaty rights of the Squaxin Island Tribe."

Response:

No changes required. The WWTP discharge (with dechlorination) will meet the requirements in WAC 173-201A, Water Quality Standards, WAC 173-220, NPDES Permit Program, and WAC 173-221, Discharge Standards And Effluent Limitations From Domestic Wastewater Facilities. These regulations were developed and adopted by the state to protect beneficial uses in the receiving environment. The question here is due to a requirement of the U.S. Food and Drug Administration for outfalls into marine environments near shellfish resources. In accordance with the FDA, no amount of reliability can be built into a WWTP to prevent the loss of disinfection. The Department of Health administers the FDA requirements in this state. The state NPDES permit program, however, allows for consideration of the reliability of WWTP processes in the protection of the beneficial uses in the receiving environment. WAC 173-201A-150 makes it imperative that Ecology be cognizant of the need for cooperative programs with other state agencies, private groups, and tribes with respect to management of related problems.

Comment:

Paragraph 5 -- "Ecology should move immediately to affect an elimination of the discharge of pollutants which render the shellfish resource in the area worthless. ... we see no reason to continue the outdated and destructive practice of discharge to the marine environment."

Response:

No guarantee can be made that the Hartstene Pointe outfall will be eliminated. However, (as mentioned earlier) Ecology is providing Centennial Clean Water Fund grant monies to assist Mason County with an alternatives evaluation for the outfall (see Fish and Wildlife comments).

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

Tim Flint, Marine Permits, Habitat Program
Letter Dated: February 6, 1995

Comment:

Paragraph 4 -- "... that in order for the proposal to be consistent with our no net loss of habitat policy, every reasonable effort should be taken to avoid conditioned, restricted, or prohibited harvest of commercial and recreational shellfish beds. To date, Mason County has not responded to requests for such information to the satisfaction of WDFW. In addition, the August 21, 1985, NPDES permit for the Hartstene Pointe plant stated that the permittee "must evaluate outfall modifications necessary to achieve certification from the Department of (Health) for currently decertified geoduck beds in the vicinity of the existing outfall." This evaluation has never been undertaken to the satisfaction of WDFW. Although the Fact Sheet for the draft permit references an outfall alternatives analysis process, scheduled to be completed by January 1, 1998, the draft NPDES permit contains no such language."

Paragraph 6 -- "In order for WDFW to withdraw its objection, the NPDES permit should include language requiring Mason County to develop and implement a plan that allows certification of currently decertified geoduck beds without decertification of additional commercial or recreational intertidal and subtidal shellfish beds prior to issuance of subsequent permits. The plan should address treatment and disposal options, such as sand filtration and additional detention capacity at the plant with potential wastewater reuse, upland disposal options, such as constructed treatment wetlands and upland storage lagoons with spray application as well as outfall relocation."

Response:

Ecology agrees that the intent of the previous permit was to evaluate alternatives for recertifying geoduck beds in the vicinity of the outfall and to implement the selected alternative. This requirement is added to Permit Section S8 - Outfall Evaluation, as follows:

The Permittee shall develop and implement a plan that allows the certification of currently decertified geoduck beds without decertification of additional commercial or recreational intertidal and subtidal shellfish beds prior to the issuance of subsequent permits.

Ecology's review of the scope, draft and final approval of the facility plan for outfall alternatives will require analysis of the following treatment and disposal options:

1. Sand filtration and additional detention capacity with potential wastewater reuse to reduce fecal coliform levels in the receiving water below Department of Health levels for certification of shellfish beds.
2. Upland disposal options such as constructed wetlands and upland storage lagoons with spray land application.
3. Outfall relocation.

Comment:

Paragraph 7 -- "The Fact Sheet ... The February 1994 WDFW Geoduck Tract Atlas (excerpt enclosed) changed the bed numbers in the vicinity to 223-227. ..."

Response:

Change noted. See responses to Department of Health comments above.

Comment:

Paragraph 8 (first sentence) -- "Appendix D, Figure 1 of the Fact Sheet does not identify all of the intertidal commercial and recreational shellfish areas in the vicinity of the treatment plant outfall discharge. This figure should include the areas identified in the enclosed map."

Response:

The enclosed map will be included with these responses to comments and become part of the Fact Sheet.

Comment:

Paragraph 8 (third and fourth sentence) -- "Although Beach numbers 280920 and 280930 do not contain hardshell clam resources at present, these areas should be protected from decertification because of their enhancement potential. Other unidentified shellfish areas, including private beaches, may contain clam resources that are currently affected by the outfall discharge."

Response:

Comment noted. Will be in outfall evaluation.